CLAIMS

1. A system for combining spatial and linear (attribute) data in a single relational database, comprising:

a computing device having a user interface;

a relational database connected to the computing device and accessible by structured query language, the database comprising spatial and attribute data related to geographic information; and

means for providing dynamic segmentation of permanent anchor sections, an anchor section defining a spatial reference for a geographic element in the relational database.

2. A system as recited in claim 1, wherein the relational database is accessed via an object-oriented front-end.

3. A system as recited in claim 1, wherein the relational database further comprises:

integrated temporal data for maintaining historical records.

4. The system as recited in claim 1, wherein the relational database is also accessible by a graphical information system viewing application.

5. A system as recited in claim 1, further comprising means for performing automated database maintenance, making the multiple databases of road network data consistent with one another.

6. A system as recited in claim 1, further comprising:

at least one additional computing device connected to the relational database, wherein the relational database is stored in a distributed data environment.

7. A method for combining spatial and linear (attribute) data in a single relational database, comprising:

providing permanent anchor sections representing physical sections of a roadway, an anchor section defining a spatial reference in road data, the anchor sections also integrated with linear data to form a road network;

associating attributes and linear events with positions in the road network;

storing linear event data related to anchor sections in a relational table;

storing road attribute data by associating each attribute with locations specified in terms of a linear referencing method (LRM);

implementing a dynamic segmentation function for conducting dynamic segmentation on a selective basis;

maintaining historical data related to anchor sections and linear event data;

enabling the creation of an interior intersection within the road data, where an interior intersection to an anchor section is defined by offsets from an end of the anchor section;

synchronizing spatial and linear data, for tying spatial data to a physical location represented by the road network; and

utilizing meta-data definitions for database elements in a data dictionary, the data dictionary defining an implementation of the relational database, resulting in an extensible relational database model.

8. A method as recited in claim 7, further comprising:

dynamically segmenting permanent anchor sections by adding interior intersections using offset information.

9. A method as recited in claim 7, wherein the database model uses an open architecture.

10. A method as recited in claim 7, wherein linear event data is stored by storing each value anchored linear event combination in a separate table record.

11. A method as recited in claim 7, wherein linear event data is stored by storing each value anchored linear event combination in a different table record with